

### **Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of the claims in the application:

1. (Currently amended) A triblock bola amphiphile composition comprising: a triblock bola amphiphile and a solvent, wherein the triblock bola amphiphile comprises a lyophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains or cyclic oligo(ethylene glycols) chains non-peptidic and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine. is peptidic,
2. (Withdrawn) The bola amphiphile of claim 1 wherein the first and second lyophilic head groups are the same.
3. (Withdrawn) The bola amphiphile as in claim 1 or 2, wherein said lyophilic head groups are peptides.
4. (Withdrawn) The composition of claim 3 wherein the amino acids comprising the peptide have at least three non-peptide bond forming amine or acid moieties.
5. (Currently amended) The bola amphiphile as in claim 1 or 2, wherein said one lyophilic head group is groups are chosen from the group consisting of: oligo(ethylene glycol) chains and the other lyophilic head group comprises an amino acid sequence of glutamic acid-glutamic acid-glutamic acid, cyclic oligo(ethylene glycols), hydroxyl functionalities, amino or carboxylic acid groups, 4'-amino-4-biphenyl carboxylic acids, naturally occurring amino acids, and aminobenzoic acids.

6. (Currently amended) A self assembled micelle comprising: at least one triblock bola amphiphile, said triblock bola amphiphile having a lyophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, non-peptidic and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence, glutamic acid-glutamic acid-glutamic acid or lysine-lysine-lysine. ~~is peptidic.~~

7. (Original) The micelle of claim 6 wherein the lyophilic head groups of the bola amphiphile are different.

8. (Original) The micelle of claim 6 wherein the core of the micelle is lyophilic.

9. (Original) The micelle of claim 6 wherein the one or more bola amphiphiles comprising the micelle are capable of hydrogen bonding.

10-12. (Canceled)

13. (Withdrawn) A method of making a self assembled micelle from triblock bola amphiphile with a lyophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived

from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, comprising the step of: making a first solution of a suitable bola-amphiphile in a charged ionic form; mixing the first solution with a second composition which changes the pH of the first solution towards a neutral pH; and reacting the first and second solutions until a gel forms.

14. (Withdrawn) A method encapsulating a therapeutic treatment comprising: providing a therapeutic agent; exposing said therapeutic to a bola amphiphile capable of self assembly, wherein the bola amphiphile comprises a lyophobic moiety capable of hydrogen bonding, the amphiphile having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine; and initiating self assembly.

15. (Withdrawn) A method of treating a patient with a therapeutic agent encapsulated in a self assembled bola amphiphile, wherein the bola amphiphile comprises a lyophobic moiety capable of hydrogen bonding, the amphiphile having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, comprising: identifying a site on a patient in need of a treatment; and administering an effective amount of the bola amphiphile

encapsulated therapeutic agent to said site in need thereof.

16. (Withdrawn) A method of encapsulating a nanotube comprising: forming a nanotube; exposing said nanotube to a bola amphiphile capable of self assembly and comprising a lyophobic moiety capable of hydrogen bonding, the bola amphiphile having a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, and initiating self assembly of said bola amphiphile.

17. (Currently amended) A triblock bola amphiphile composition comprising: a solvent and a hydrophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said hydrophobic moiety chemically coupled to a first hydrophilic head group; and the second end of said hydrophobic moiety chemically coupled to a second hydrophilic head group, wherein one hydrophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains non-peptidic and the other hydrophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine. is peptidic,

18. (Withdrawn) The bola amphiphile of claim 17 wherein the first and second hydrophilic heads groups are the same.

19. (Withdrawn) The bola amphiphile as in claim 17 or 18, wherein said hydrophilic

head groups are peptides.

20. (Withdrawn) The composition of claim 19 wherein the amino acid sequence has acids comprising the peptide have at least three non-peptide bond forming amine or acid moieties.

21. (Canceled)

22. (Currently amended) A self assembled micelle comprising: at least one bola amphiphile, said bola amphiphile having a hydrophobic moiety capable of hydrogen bonding and having a first end and a second end; the first end of said hydrophobic moiety chemically coupled to a first hydrophilic head group; and the second end of said hydrophobic moiety chemically coupled to a second hydrophilic head group, wherein one hydrophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains ~~non-peptide~~ and the other hydrophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or an amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine. ~~is peptide,~~

23. (Original) The micelle of claim 22 wherein the hydrophilic head groups of the bola amphiphile are different.

24. (Original) The micelle of claim 22 wherein the core of the micelle is hydrophilic.

25. (Previously amended) The micelle of claim 22 wherein the at least one bola amphiphiles comprising the micelle are capable of hydrogen bonding.

26-28. (Canceled)

29. (Withdrawn) A method of making a self assembled micelle from bola amphiphile

with a hydrophobic moiety capable of hydrogen bonding, wherein the bola amphiphile has a first end and a second end; the first end of said lyophobic moiety chemically coupled to a first lyophilic head group; and the second end of said lyophobic moiety chemically coupled to a second lyophilic head group, wherein one lyophilic head group is selected from the group consisting of oligo(ethylene glycol) chains and cyclic oligo(ethylene glycols) chains, and the other lyophilic head group comprises an amino acid sequence comprising hydroxyl functionalities from L-serine, charged amino or carboxylic acid groups derived from aspartic acid or lysine, or the amino acid sequence selected from glutamic acid-glutamic acid-glutamic acid and lysine-lysine-lysine, comprising the step of: making a first solution of a suitable bola-amphiphile in a charged ionic form; mixing the first solution with a second composition which changes the pH of the first solution towards a neutral pH; and reacting the first and second solutions until a gel forms.

30. (Withdrawn) A method encapsulating a therapeutic treatment comprising: providing a therapeutic agent; exposing said therapeutic to a bola amphiphile capable of self assembly; and initiating self assembly.

31. (Withdrawn) A method of treating a patient with a therapeutic agent encapsulated in a self assembled bola amphiphile comprising: identifying a site on a patient in need of a treatment; and administering an effective amount of the bola amphiphile encapsulated therapeutic agent to said site in need thereof.

32. (Withdrawn) A method of encapsulating a nanotube comprising: forming a nanotube; exposing said nanotube to a bola amphiphile capable of self assembly, and initiating self assembly of said bola amphiphile.

33. (Withdrawn) The micelle as in claim 6, further comprising a composition chosen from the group consisting of: pharmaceuticals, chemotherapeutics, immunosuppressants, antifungals, antibacterials, growth factors, vaccines, tissue/cell culture factors, and antibiotics.

34. (Withdrawn) The micelle as in claim 6, further comprising a material chosen from the consisting of: carbon nanotubes, colloidal metals, conductive polymers, magnetic colloids, and semiconductors.

35. (Withdrawn) The micelle as in claim 22, further comprising a composition chosen from the group consisting of: pharmaceuticals, chemotherapeutics, immunosuppressants, antifungals, antibacterials, growth factors, vaccines, tissue/cell culture factors, and antibiotics.

36. (Withdrawn) The micelle as in claim 22, further comprising a material chosen from the consisting of: carbon nanotubes, colloidal metals, conductive polymers, magnetic colloids, and semiconductors.